



US006362808B1

(12) **United States Patent**
Edge et al.

(10) Patent No.: **US 6,362,808 B1**
(45) Date of Patent: ***Mar. 26, 2002**

(54) **ARRANGEMENT FOR MAPPING COLORS BETWEEN IMAGING SYSTEMS AND METHOD THEREFOR**

(75) Inventors: **Christopher J. Edge, St. Paul; Timothy A. Fischer, Mendota Heights; William A. Rozzi, West Lakeland Township, all of MN (US)**

(73) Assignee: **Minnesota Mining and Manufacturing Company, St. Paul, MN (US)**

(*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **08/909,932**

(22) Filed: **Aug. 12, 1997**

Related U.S. Application Data

- (63) Continuation of application No. 08/882,561, filed on Jul. 3, 1997, now Pat. No. 6,088,038.
(51) Int. Cl.⁷ **G09G 5/04**
(52) U.S. Cl. **345/153; 345/150; 345/154; 345/155; 345/431; 345/199**
(58) Field of Search **345/150, 153-155, 345/431, 438, 199; 358/515, 516, 518; 348/161, 659; 382/166**

(56) **References Cited**

U.S. PATENT DOCUMENTS

- 3,612,753 A 10/1971 Korman 178/5.9
3,893,166 A 7/1975 Pugsley 358/80
4,482,917 A * 11/1984 Gaulke et al. 358/518
4,500,919 A 2/1985 Schreiber 358/78**

4,884,130 A	11/1989	Huntsman	358/80
4,884,221 A	11/1989	Sugiyama et al.	364/526
5,012,431 A	4/1991	Stanzola	364/526
5,105,267 A	4/1992	Hayashi	358/80
5,233,684 A	8/1993	Ulrichney	395/131
5,305,119 A	4/1994	Rolleston et al.	358/522
5,339,176 A	8/1994	Smilansky et al.	358/504
5,402,253 A	3/1995	Seki	358/518
5,432,906 A	7/1995	Newman	395/162
5,506,696 A	4/1996	Nakano	358/504
5,526,285 A	6/1996	Campo et al.	364/526
5,528,386 A	6/1996	Rolleston et al.	358/522

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

EP	0 475 554	3/1992
EP	0 622 952	11/1994
EP	0 706 285	4/1996
EP	0 604 755	12/1999
WO	WO 93/20648	10/1993

OTHER PUBLICATIONS

International Color Consortium, "ICC Profile Format Specification," Version 3.3, Nov. 1996.*

(List continued on next page.)

Primary Examiner—Richard A. Hjerpe

Assistant Examiner—Henry N. Tran

(74) *Attorney, Agent, or Firm*—William D. Bauer

ABSTRACT

A color mapping method is used in transforming colors between color imaging systems. The method includes using forward transformation profiles that characterize the color imaging systems to generate respective sets of device-independent color values for the color imaging systems. Color conversions are calculated by reducing differences between the respective sets of device-independent color values. Based on these color conversions, a color map is constructed that describes a relationship between the color imaging systems.

36 Claims, 6 Drawing Sheets

